



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-1077B
Plant ID No.: 017-00003
Applicant: Dominion Transmission, Inc. (Dominion)
Facility Name: L.L. Tonkin Compressor Station
Location: West Union, Doddridge County
NAICS Code: 486210 (Natural Gas Transmission)
Application Type: Class II Administrative Update
Received Date: December 27, 2016
Engineer Assigned: Jerry Williams, P.E.
Fee Amount: \$1,300.00
Date Received: December 27, 2016
Complete Date: January 18, 2017
Due Date: March 19, 2017
Applicant Ad Date: January 6, 2017
Newspaper: *The Doddridge Independent*
UTM's: Easting: 518.82 km Northing: 4,351.18 km Zone: 17
Latitude: 39.309809
Longitude: -80.781703
Description: This permitting action corrects information for the emergency generator and boiler installed during the previous permit modification.

DESCRIPTION OF PROCESS

Permit R13-1077A was issued to Dominion for this natural gas transmission facility on March 26, 2015. This proposed permitting action updates information previously provided for one (1) natural gas-fired emergency generator and one (1) natural gas-fired boiler at the facility. The emergency generator was previously permitted as a 600 horsepower (hp) Caterpillar CG137-12 and the boiler was a 1.75 million British Thermal Units per hour (MMBTU/hr) Ajax WRF-1750. However, a 1,462 hp Caterpillar C3516 emergency generator and a 2.94 MMBTU/hr Hurst LPW-G-70-60W boiler will be installed.

Promoting a healthy environment.

SITE INSPECTION

A site inspection was conducted on June 1, 2016 by Doug Hammell of the DAQ Enforcement Section. According to Mr. Hammell, the facility was operating in compliance.

Directions as given in the permit application are as follows:

West Union exit (Route 18 North) off of US-50. Travel approximately 3.5 miles and the station will be on the left.



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this Class II administrative update consist of the equipment listed in the following table:

Emission Unit ID#	Process Equipment	Calculation Methodology
002-02	1,462 hp Caterpillar G3516 Emergency Generator	Manufacturer's Data, EPA AP-42 Emission Factors
004-02	2.94 MMBTU/hr Hurst LPW-G-70-60W Boiler	EPA AP-42 Emission Factors

Maximum detailed controlled point source emissions were calculated by Dominion and checked for accuracy by the writer. The following table represents the emissions associated with the previous and proposed emergency generator and boiler:

Pollutant	Previous EG and Boiler (tons/year)	Proposed EG and Boiler (tons/year)	PTE Change (tons/year)
Nitrogen Oxides	0.84	2.87	2.03
Carbon Monoxide	0.94	2.61	1.67
Volatile Organic Compounds	0.11	0.50	0.39
Particulate Matter-10	0.05	0.13	0.08
Sulfur Dioxide	0.01	0.015	0.005
Formaldehyde	0.02	0.25	0.23
Total HAPs	0.06	0.36	0.30

The total facility PTE (including fugitives) for the L.L. Tonkin Compressor Station is shown in the following table:

Pollutant	R13-1107A PTE (tons/year)	R13-1107B PTE (tons/year)
Nitrogen Oxides	80.3	82.3
Carbon Monoxide	122.1	123.8
Volatile Organic Compounds	13.9	14.3
Particulate Matter-10	13.0	13.1
Sulfur Dioxide	0.67	0.68
Formaldehyde	0.94	1.17
Total HAPs	2.04	2.34

REGULATORY APPLICABILITY

The following rules apply to this Class II administrative update:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the boiler (002-02) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR2.

Dominion would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the boiler (002-02) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR10.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 Section 4.2.b states that a Class II administrative update includes changes in a permit condition as necessary to allow changes in operating parameters, emission points, control equipment or any other aspect of a source which results in an increase or no change in the emission of any existing regulated air pollutant or any new regulated air pollutant. The emission increase associated with this application is below 45CSR13 permit modification thresholds. Therefore, it is my opinion that this request qualifies for a Class II administrative update. Dominion published the required Class I legal advertisement in *The Doddridge Independent* on January 6, 2017.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60 Subpart JJJJ. These requirements are discussed under that rule below.

45CSR30 (Requirements for Operating Permits)

Dominion is subject to 45CSR30. The L.L. Tonkin Compressor Station has the potential to emit more than major regulatory threshold for CO. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Dominion is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30. Changes authorized by this permit must also be incorporated into the facility's Title V operating permit. Commencement of the operations authorized by this permit shall be determined by the appropriate timing limitations associated with Title V permit revisions per 45CSR30.

Dominion is required to pay the appropriate annual fees and submit an annual Certified Emissions Statement.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE))

40CFR60 Subpart JJJJ establishes emission standards for applicable SI ICE.

The 1,462 hp Caterpillar G3516 emergency RICE (002-002) was manufactured after January 1, 2009 and has a maximum rated power capacity greater than 130 hp.

The 1,462 hp Caterpillar G3516 emergency RICE (002-002) will be subject to the following emission limits: NO_x – 2.0 g/hp-hr (6.45 lb/hr); CO – 4.0 g/hp-hr (12.89 lb/hr); and VOC – 1.0 g/hp-hr (3.22 lb/hr). Based on the manufacturer's specifications for these engines, the emission standards will be met.

The 1,462 hp Caterpillar G3516 emergency RICE (002-002) is not certified by the manufacturer to meet the emission standards listed in 40CFR60 Subpart JJJJ. Therefore, Dominion will be required to conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or three (3) years, whichever comes first, to demonstrate compliance.

40CFR63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. The emergency RICE (002-02) is subject to the area source requirements for non-emergency spark ignition engines.

The applicability requirements for new stationary RICEs located at an area source of HAPs, is the requirement to meet the standards of 40CFR60 Subpart JJJJ. These requirements were outlined above. The proposed engine meets these standards.

Because the engine is not certified by the manufacturer, Dominion will be required to perform an initial performance test within 180 days from startup, and subsequent testing every 8,760 hours or 3 years, whichever comes first.

The following rules do not apply to the facility:

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The L.L. Tonkin Compressor Station is located in Doddridge County, which is an unclassified county for all criteria pollutants, therefore the L.L. Tonkin Compressor Station is not applicable to 45CSR19.

As shown in the following table, Dominion is not a major source subject to 45CSR14 or 45CSR19 review. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, the fugitive emissions are not included in the PTE below.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	L.L. Tonkin PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	123.8	No
Nitrogen Oxides	250	NA	82.3	No
Sulfur Dioxide	250	NA	0.68	No
Particulate Matter 2.5	250	NA	13.1	No
Ozone (VOC)	250	NA	14.3	No

40CFR60 Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016. 40CFR60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from

affected facilities that commence construction, modification or reconstruction after September 18, 2015. The effective date of this rule is August 2, 2016.

For the purposes of 60.5397a (LDAR), a “modification” to a compressor station occurs when one or more compressors is replaced by one or more compressors of greater total horsepower than the compressor(s) being replaced. There are no new compressors being added. Therefore, a “modification” did not occur and this rule does not apply.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. The L.L. Tonkin Compressor Station is classified as an area source of hazardous air pollutants. There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health effects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at www.epa.gov/iris.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) as seen in the table listed in the Regulatory Discussion Section.

SOURCE AGGREGATION

“Building, structure, facility, or installation” is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Source Determination Rule for the oil and gas industry was published in the Federal Register on June 3, 2016 and became effective on August 2, 2016. EPA defined the term “adjacent” and stated that equipment and activities in the oil and gas sector that are under common control will be considered part of the same source if they are located on the same site or on sites that share equipment and are within ¼ mile of each other.

The L.L. Tonkin Compressor Station will operate under SIC code 4922 (Natural Gas Transmission). There are other compressor stations operated by Dominion that share the same two-digit major SIC code of 49 for natural gas transmission. However, these compressor stations are not located on “contiguous or adjacent” property.

“Contiguous or Adjacent” determinations are made on a case by case basis. There are no other equipment and activities in the oil and gas sector that are under common control of Dominion that are located on the same site or on sites that share equipment and are within ¼ mile of each other.

Because there are no facilities that are under common control and located on contiguous or adjacent properties, the emissions from the L.L. Tonkin Compressor Station should not be aggregated with other facilities in determining major source or PSD status.

MONITORING OF OPERATIONS

Dominion will be required to perform the following monitoring and recordkeeping:

- Monitor and record hours of operation for the emergency generator.
- Monitor and record annual fuel usage for the boiler.
- Monitor all applicable requirements of 40CFR60 Subpart JJJJ and 40CFR63 Subpart ZZZZ.
- Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location.
- Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
- Maintain records of the visible emission opacity tests conducted per the permit.
- Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility.

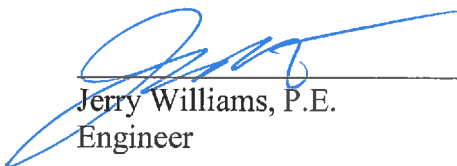
The records shall be maintained on site or in a readily available off-site location maintained by Dominion for a period of five (5) years.

CHANGES TO PERMIT R13-1077A


- Section 1.0 (Emission Units) – Changed the emission unit data for the emergency generator (002-02) and boiler (004-02).
- Section 3.5.3 (Correspondence) – Added the ability to submit reporting electronically to the DAQ.
- Section 4.1.3 (Boiler) – Modified the NO_x and CO emission limits, the maximum design heat input, and the annual fuel usage.
- Section 4.1.4 (Emergency Generator) – Modified emission limits based on new engine.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Dominion meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the L.L. Tonkin Compressor Station should be granted a 45CSR13 Class II administrative update for their facility.



Jerry Williams, P.E.
Engineer



Date